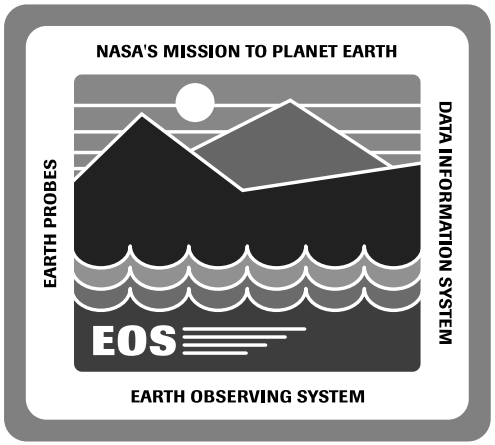


Daily Scheduling Scenario

Nelson V. Pingitore

18 October 1995

Daily Scheduling Description

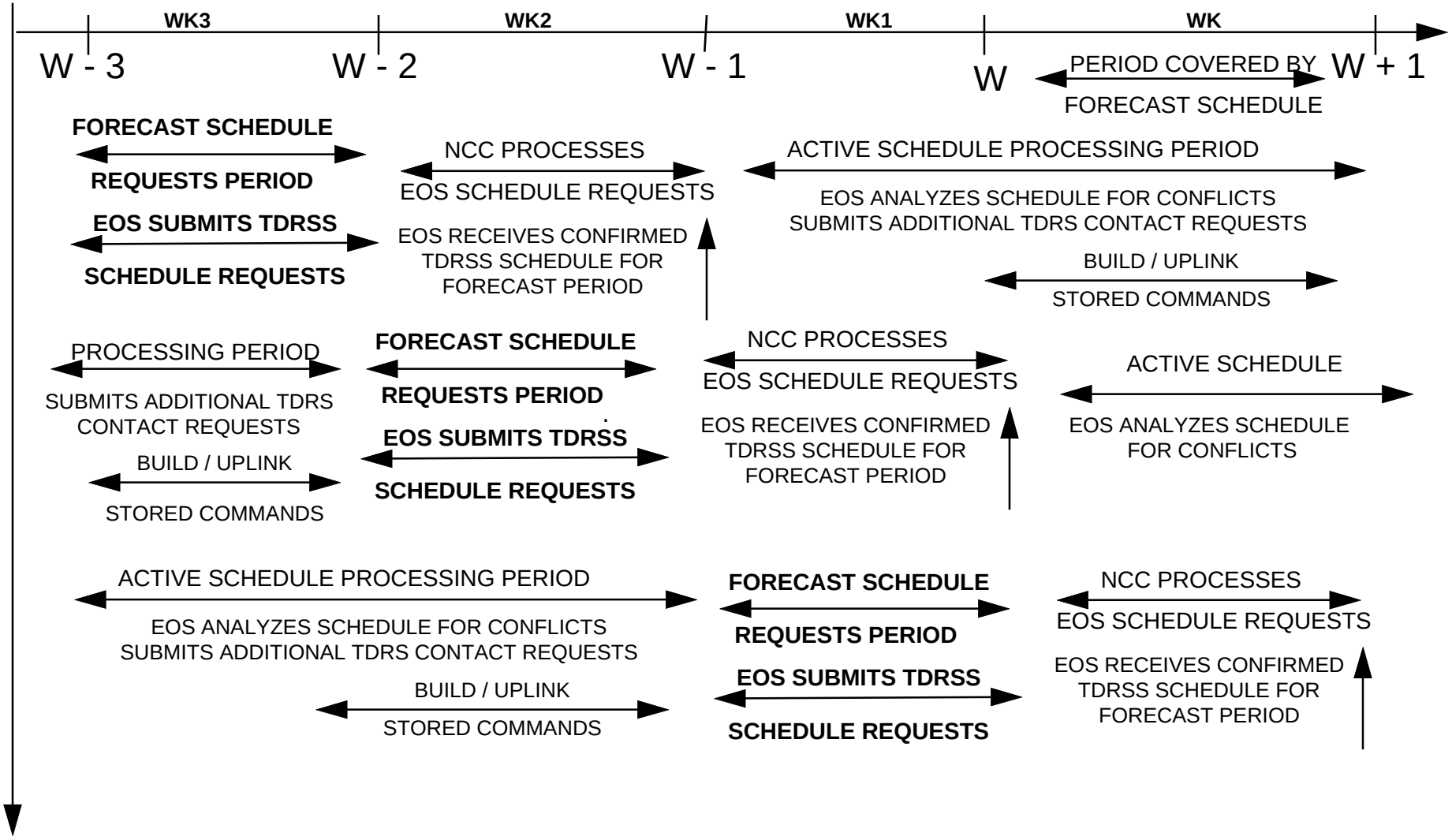
Description

- **The FOT Schedulers are responsible for:**
  - **Populating activities on the Timeline.**
  - **generating the Absolute Time Command Load(ATC) for AM-1.**
  - **generating the Ground Script for AM-1.**
  - **Scheduling the uplink of the ATC load and FDF loads.**
- **Activity definitions, Relative Time Command sequences, and Procedures used for scheduling are maintained under Operations CCB.**
- **The ATC Load and Ground Script are built from Activities and commands entered on the Timeline.**

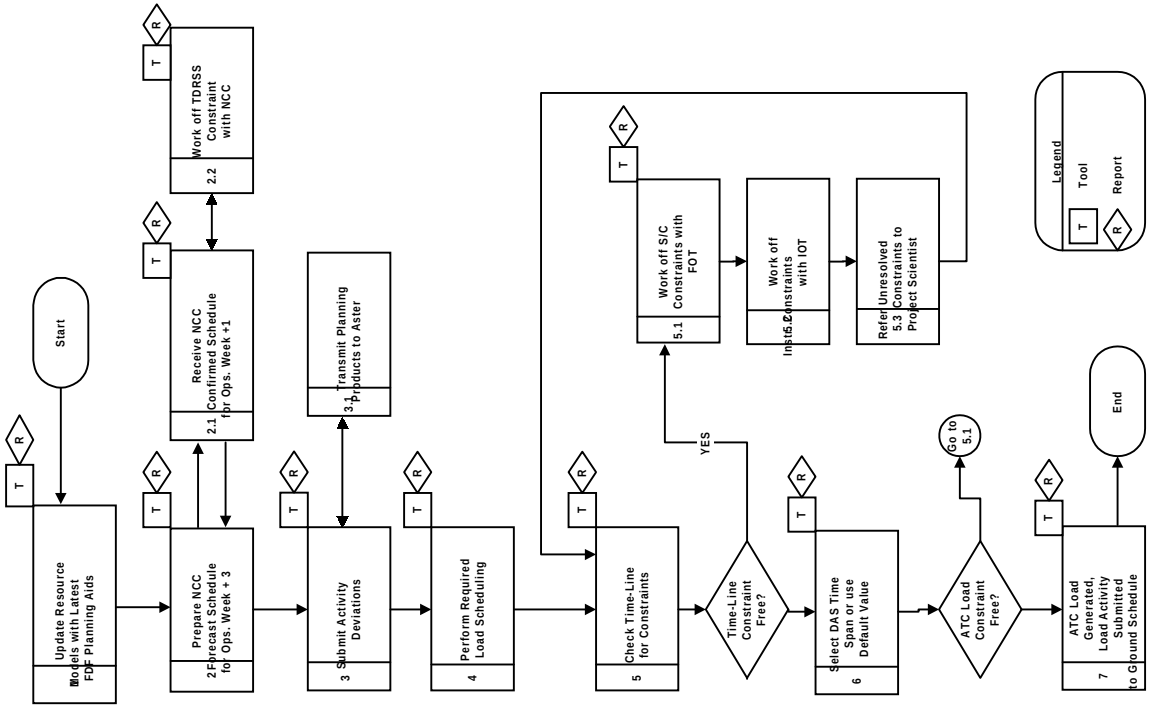
Daily Scheduling Scenario: Use / How Often

- **The Absolute Time Command Load controls the configuration of the S/C and selected Instruments in support of achieving the AM-1 science mission.**
- **The Ground Script is used by the FOT for the execution of real-time commanding.**
- **The ATC load and the Ground Script are generated simultaneously.**

NCC - EOS
TDRSS Scheduling Windows



Daily Scheduling Scenario Flow Chart



Update Resource Models

Step 1

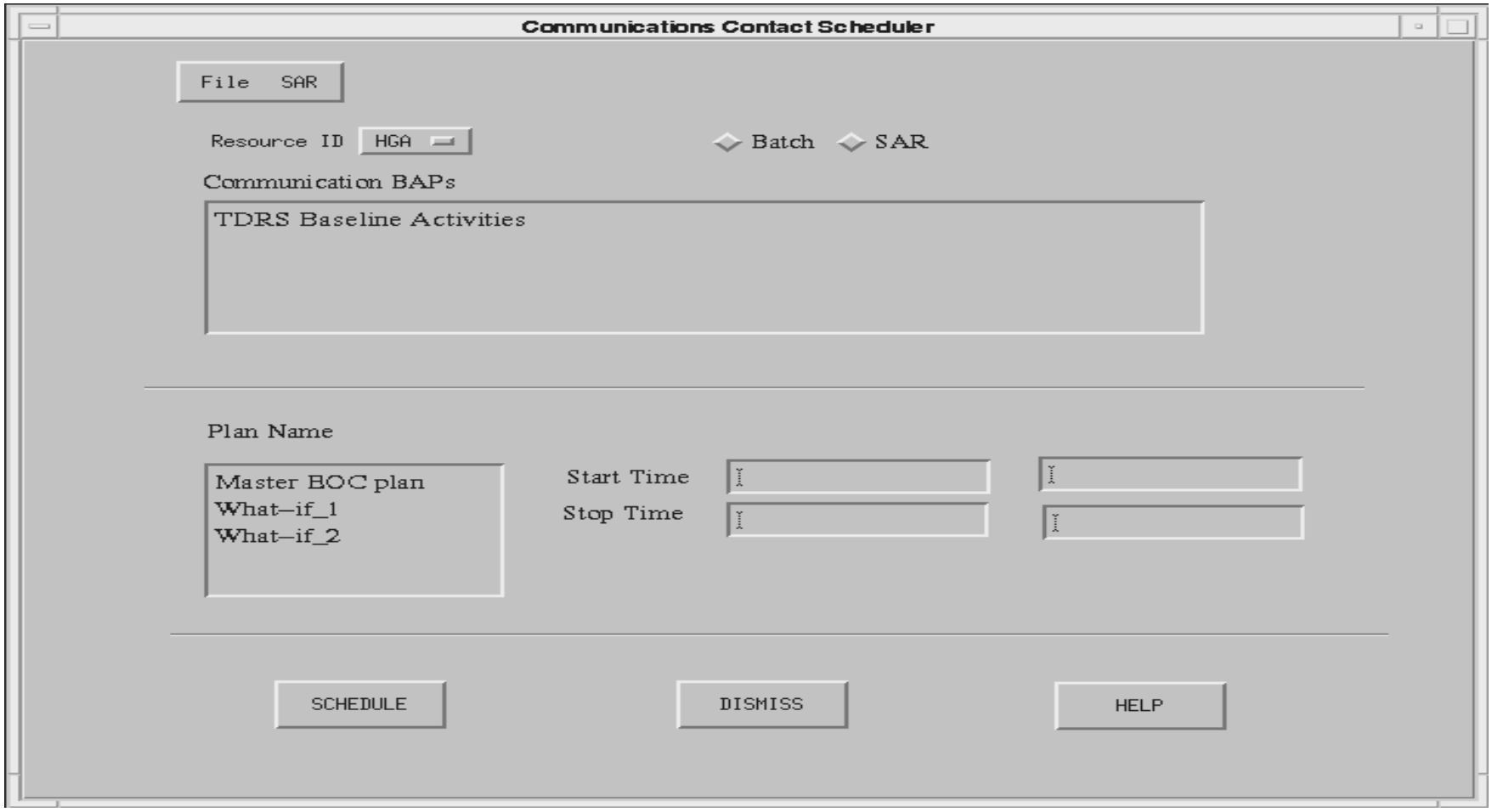
- **DMS automatically receives FDF data and launches the *Event Scheduler* for validation and ingest.**
- **The *Resource Model* is updated with the FDF data.**
- **All events times are updated in the *Resource Model*.**
- ***Timeline* is updated to reflect updated event times.**
- **The Scheduler generates the Ephemeris report that specifies the time span of the FDF products ingested by the *Event Scheduler*.**
  - **The *Event Scheduler* runs as a batch process.**

Prepare NCC Forecast Schedule

Step 2

- **The FOT Scheduler uses the batch mode of the *Communication Contact Scheduler* tool to determine and schedule required TDRS contacts.**
  - **TDRS contact times are paired with Configuration Codes and Prototype IDs to form the Forecast Schedule**
  - **The Forecast Schedule is transmitted to the NCC.**

Communications Contact Scheduler

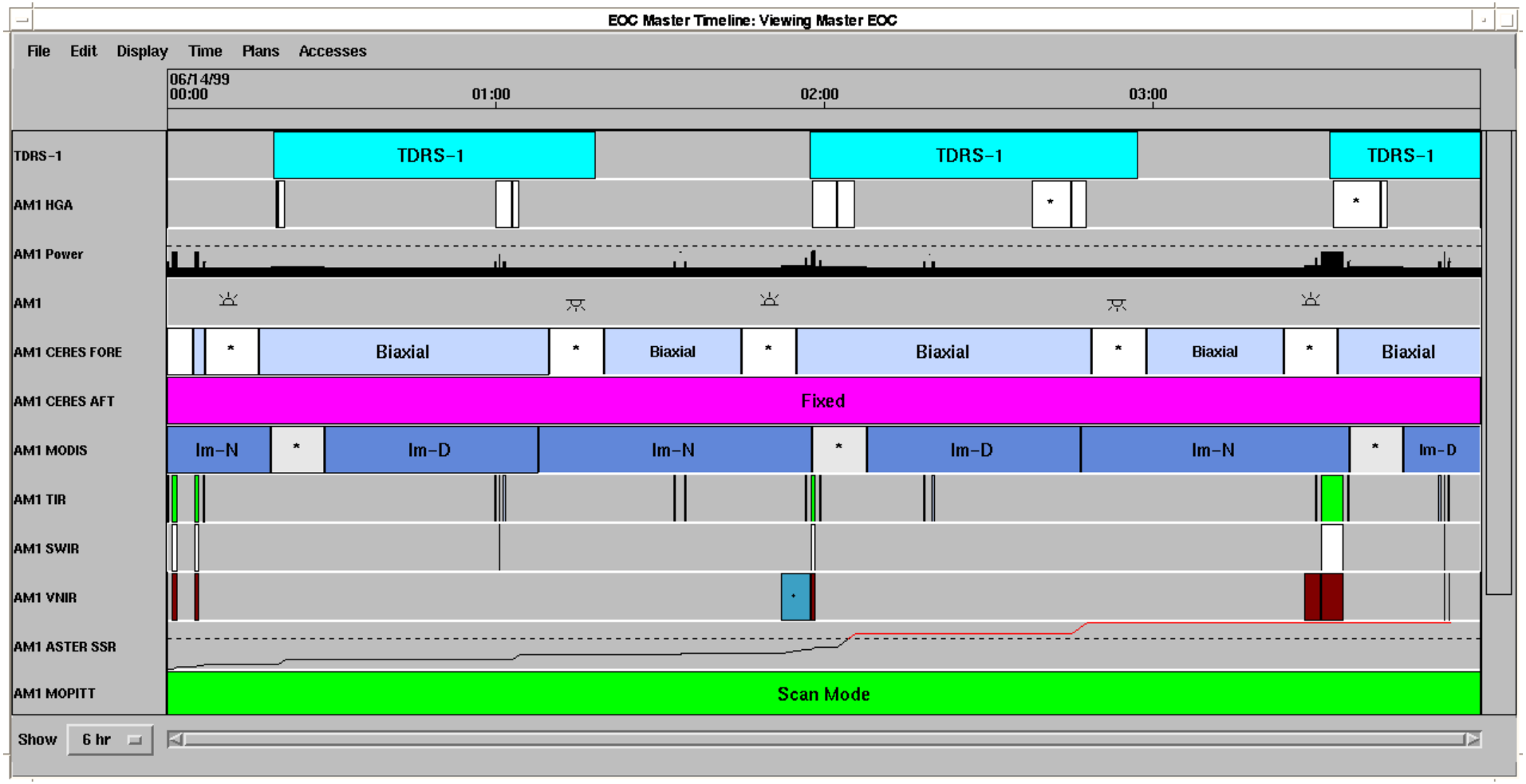


Receive NCC Confirmed Schedule

Step 2.1

- **The *Communication Contact Scheduler* tool will receive route to the Timeline TDRS contacts from the NCC confirmed schedule.**
  - **Deficiencies in TDRS contacts resulting in SSR buffer overflows or insufficient TONS activity, are flagged as constraints.**

Timeline Tool

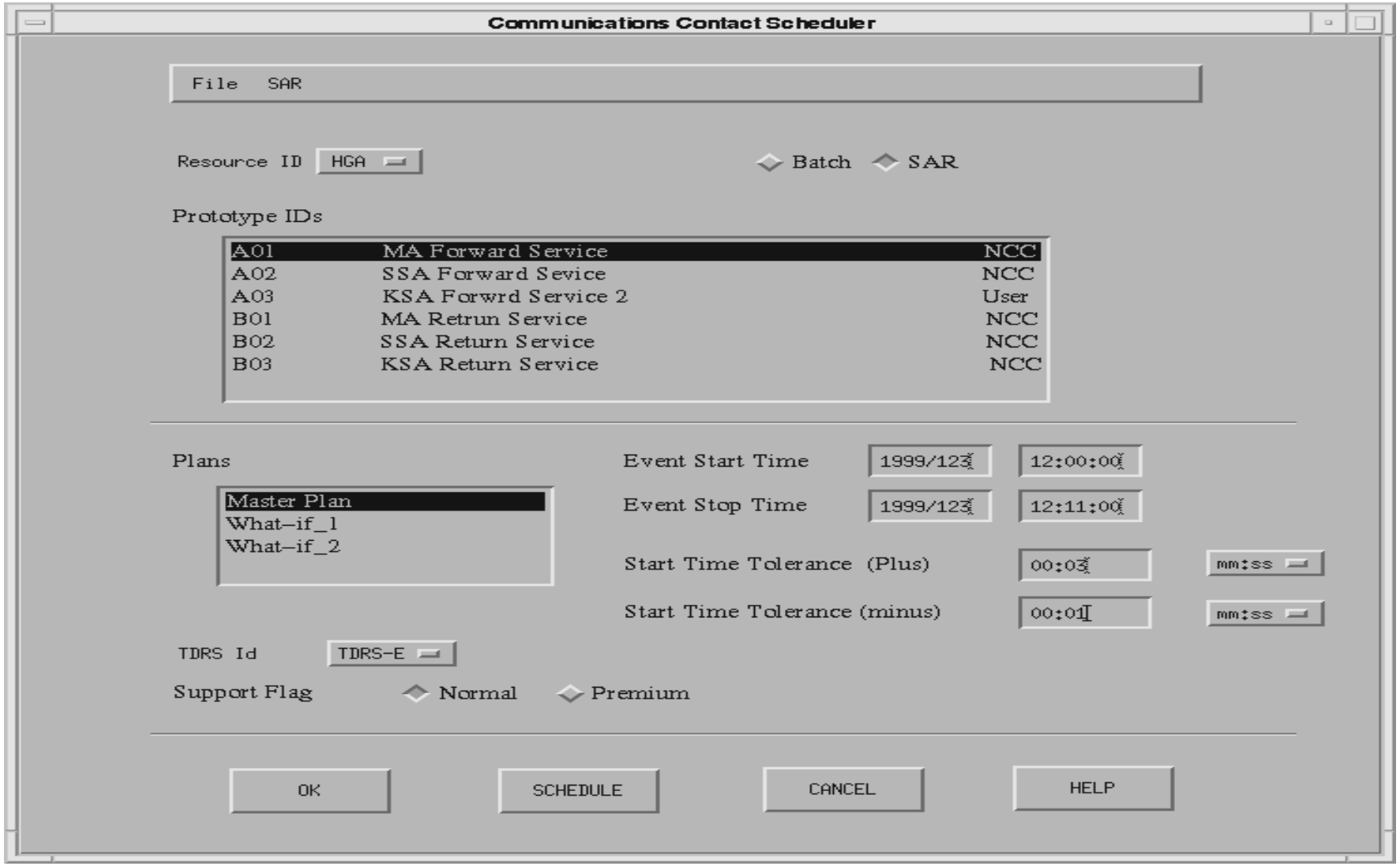


NCC Constraint Workoff

Step 2.3

- **The FOT Scheduler uses the *Communication Contact Scheduler* tool to schedule additional required TDRS contacts**
  - **FOT Scheduler executes extensive voice negotiations with the NCC to identify viable TDRS contact times.**
  - **Additional TDRS contact times form a Schedule Add Request**
  - **The Schedule Add Request is transmitted to the NCC**

Communications Contact Scheduler

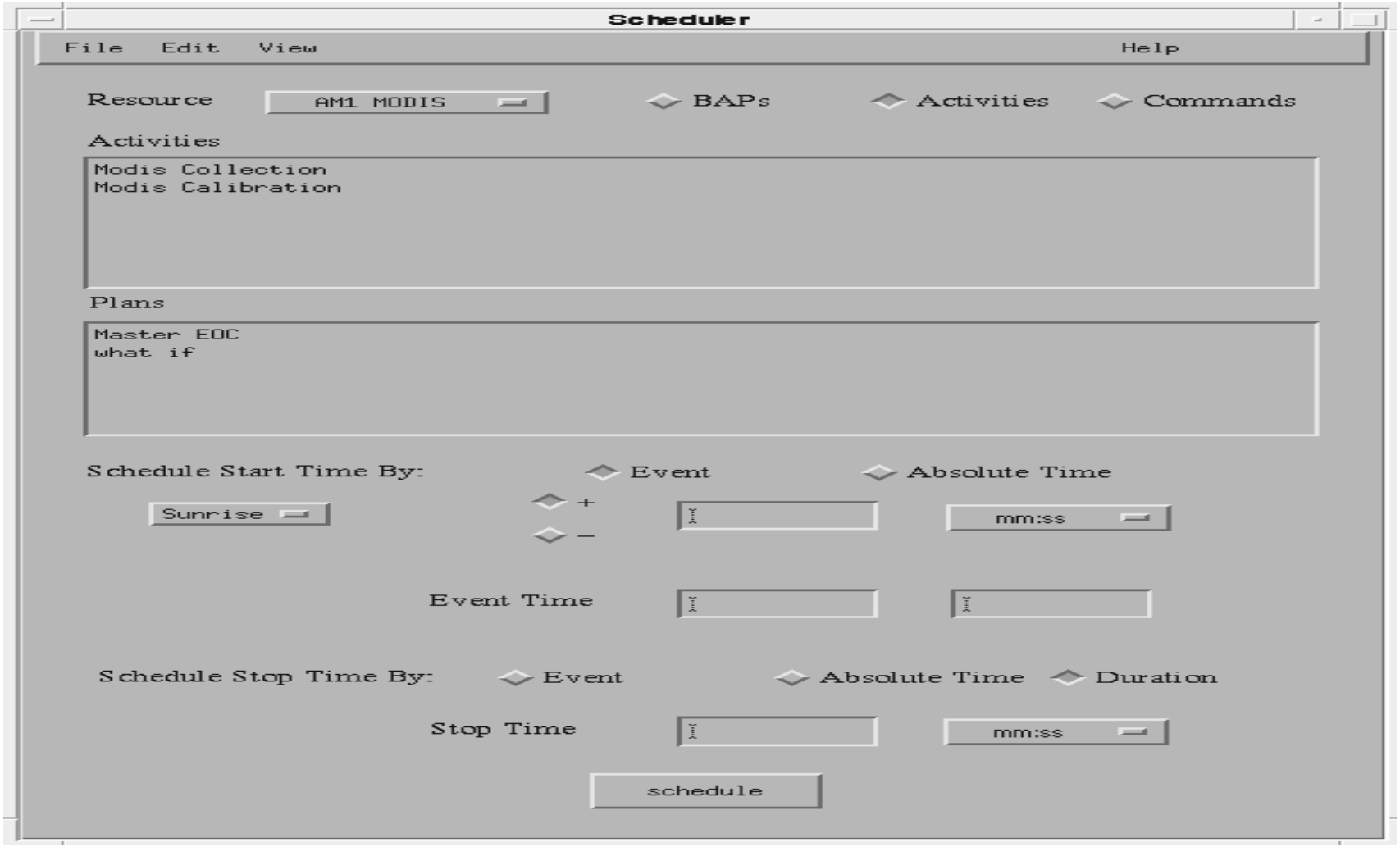


Activity Deviation Scheduling

Step 3

- **The FOT Scheduler uses the *Activity Scheduler* tool to Add, Delete, and Change Timeline activities**
- **Inside the Activity Display Window, a Scheduler will:**
  - **Select a resource and the desired activity**
  - **The timetag for the activity as either an absolute time or an event**
  - **The a time span, if applicable, is specified for the activity**
  - **The Scheduler sends the activity to the *Timeline***
  - **The Scheduler uses the *Timeline* print option to print a graphical image of the *Timeline* display**

Activity Scheduler Display



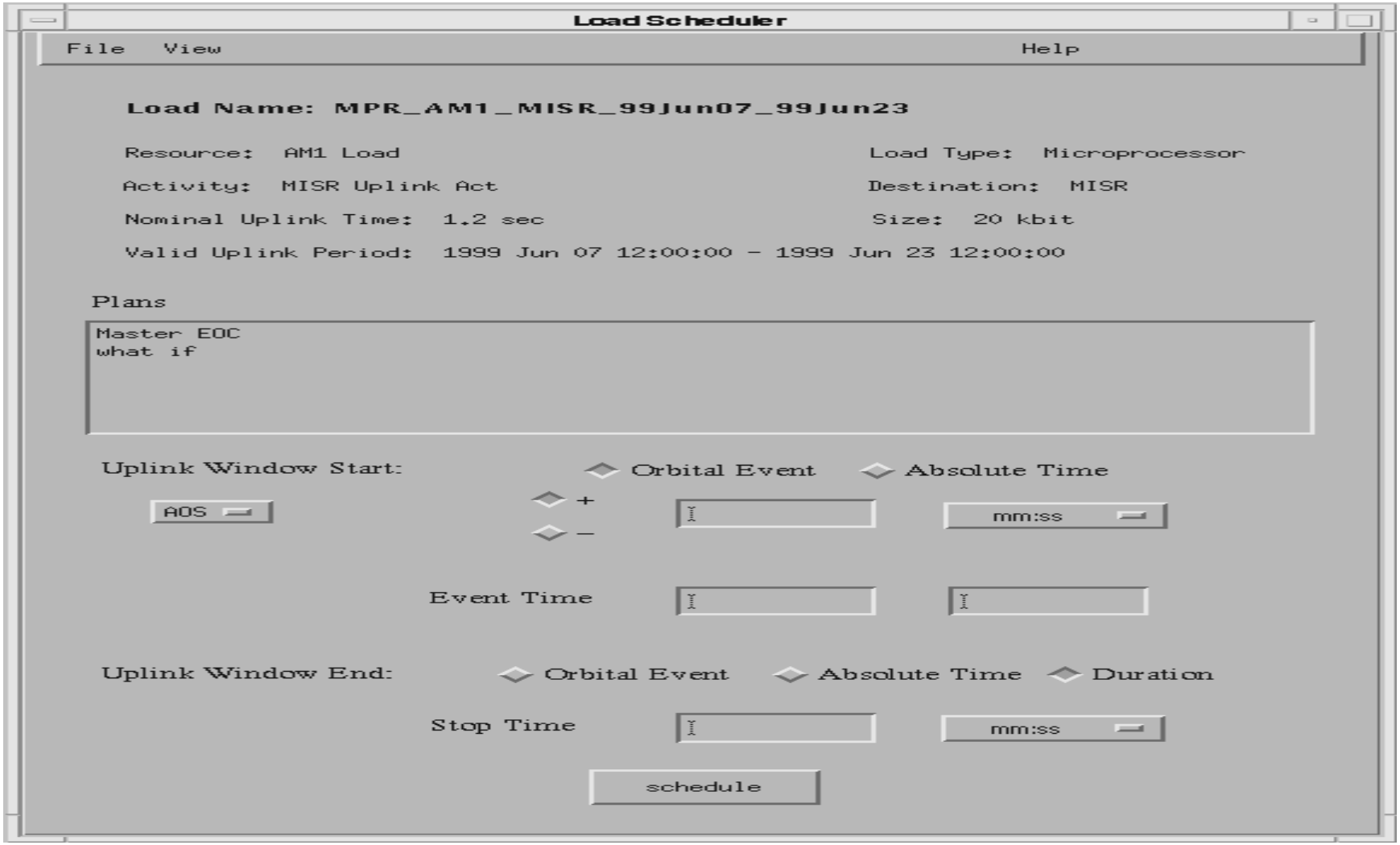
Load Scheduling

Step 4

The FOT Scheduler uses the *Load Scheduler* tool for the scheduling of AM-1 S/C and Instrument loads .

- **The Scheduler performs the following via the *Load Scheduler* Display:**
  - **Selects desired load, a related uplink activity, a load window start time by absolute time or orbit event, and a duration for the load window.**
  - **Sends the load and uplink activity to the *Timeline*.**
  - **Generates a report of the schedule loads.**

Load Scheduler Display



Check Constraints

Step 5

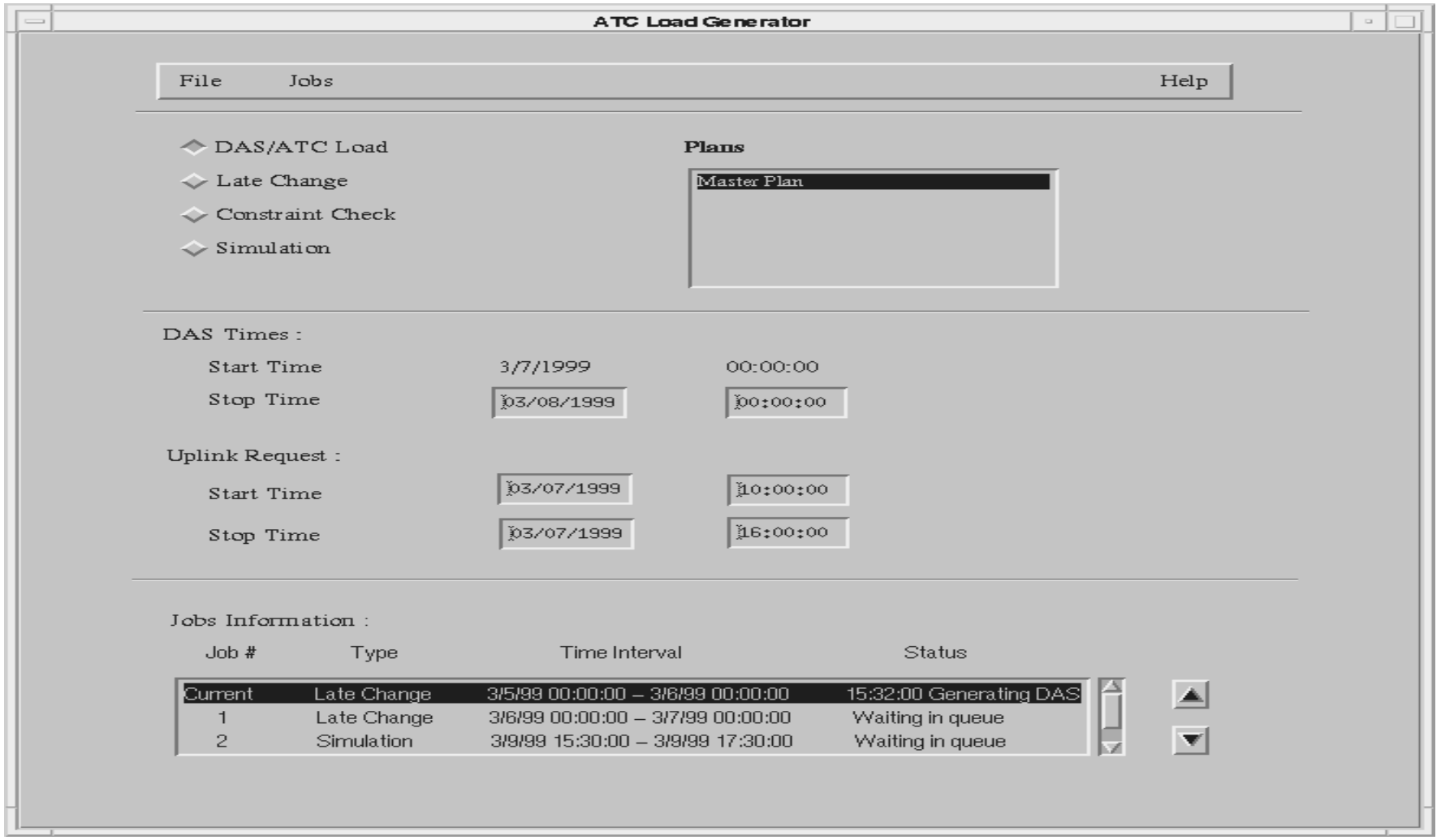
- ***Timeline*** **tool shows constraints on and/or between activities.**
- ***Timeline*** **edit options allows for direct manipulation of constrained activities on the Timeline.**
- ***Timeline*** **view available to users of the EOC scheduling system, including the FOT, ISTs, and ICCs.**
- **FOT executes constraint resolution procedures for bus activities and communications contacts, in cooperation with the Off-Line engineering staff.**
- **Instrument Teams are expected to execute intra-instrument constraint resolution procedures.**
- **Unresolved constraints will be referred to the Mission Operations Manager or designate for resolution.**
- **Reports of the** ***Timeline*** **contents and constraints may be printed.**

Detailed Activity Schedule

Step 6

- **FOT Scheduler uses the *ATC Load Generator* tool to generate ATC loads for a user specified time span.**
  - **Inside the *ATC Load Generator* window, the Scheduler enters the DAS stop time.**
- **The DAS is prepared and submitted to the CMS for expansion into commands and the subsequent ATC load.**

ATC Load Generator Display



ATC Load and Ground Script

Step 7

- **All ATC commands are constraint checked.**
- **The ATC binary load file is generated.**
- **An ATC load uplink activity is entered into the Ground Script.**
- **On-line staff is notified of the new ATC load availability and the updated Ground Script.**